TABLE CS-3
Second Hand Store ACM Removal and Restoration

COST ESTIMATE SUMMARY

Site: Libby Asbestos
Location: Libby, Montana
Date: April 29, 2003

Description: Removal of ACM. Containment, storage, transportation and disposal of ACM materials, detail cleaning and wall/attic floor restoration of the Second Hand Store.

CAPITAL COSTS:

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES	REFERENCE
ACM Personal Protective Equipment	1	LS	$ 4,291	$ 4,291	Based on duration of VCI and ACM removal	CW2-1
Portable Decontamination Facility	1	EA	$ 1,345	$ 1,345		CW2-2
Containment System and Set-up	1	LS	$ 6,009	$ 6,009	Based on building size	CW2-3
Inventory Cleaning	1	LS	$ 19,648	$ 19,648		CW2-4
VCI Bulk Removal	1	LS	$ 15,932	$ 15,932	Based on size of the walls contaminated with VCI	CW2-5
Cleaning and Restoration	1	LS	$ 9,967	$ 9,967		CW2-6
Asbestos-Contaminated Soil Removal	1	LS	$ 10,541	$ 10,541	Based on soil contaminated volume	CW2-7
Transportation and Disposal	1	LS	$ 10,800	$ 10,800	Based on the volume of VCI and ACM	CW2-8
Site Breakdown	1	LS	$ 4,985	$ 4,985		CW2-9
SUBTOTAL				$ 83,518		
TOTAL CAPITAL COST				$ 83,518		

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TABLE CW2-1

Capital Cost Sub-Element
ACM Personal Protective Equipment

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas **Date:** 4/28/2003
Checked By: B. Cotton **Date:** 5/2/2003

Work Statement:
This sub-element includes Personal Protective Equipment (PPE) and two-way communication radios needed for the duration of VCI bulk removal and asbestos contaminated soil removal, cleaning and restoration.

Cost Analysis:
Personal Protective Equipment and Respirator

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC	CITATION	COMMENTS
Communications																			
Two-Way Radios	7	EA	1.00	$0.00	$0.00	$0.00	$0.00	$60.00	$0.00	$60.00	$420.00	1.04	1.13	$491.40	15%	8%	$610	E 33-01-0420	
Level C PPE																			
Disposable Coveralls (tyvek/polycoated)	80	EA	1.00	$0.00	$0.00	$0.00	$0.00	$5.69	$0.00	$5.69	$471.20	1.04	1.13	$551.30	15%	8%	$685	E 33-01-0424	
Disposable Boot Cover (Tyvek)	80	EA	1.00	$0.00	$0.00	$0.00	$0.00	$1.13	$0.00	$1.13	$90.40	1.04	1.13	$105.77	15%	8%	$131	E 33-01-0421	
Half-Face Respirator	5	EA	1.00	$0.00	$0.00	$0.00	$0.00	$49.82	$0.00	$49.82	$248.10	1.04	1.13	$290.26	15%	8%	$361	E 33-01-0435	
Cartridges	80	EA	1.00	$0.00	$0.00	$0.00	$0.00	$20.94	$0.00	$20.94	$1,675.20	1.04	1.13	$1,959.98	15%	8%	$2,434	E 33-01-0435	
Disposable Gloves, latex, pair	80	EA	1.00	$0.00	$0.00	$0.00	$0.00	$0.21	$0.00	$0.21	$16.80	1.03	1.13	$19.49	15%	8%	$24	R 33-01-0423	
Safety goggles, reusable	5	EA	1.00	$0.00	$0.00	$0.00	$0.00	$6.38	$0.00	$6.38	$31.90	1.03	1.13	$37.00	15%	8%	$46	R 33-01-0427	
														TOTAL UNIT COST:			$4,291		

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000.
Escalation factor is index from base year of estimate divided by index from year of cost data.
Escalation indices are from Exhibit B-1 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000, and http://www.ehr.com/features/conEco/costIndexesdefault.asp
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000

Source of Cost Data:
NA - Not Applicable - costs are from previous work or vendor quote
For citation references, the following sources apply:
O - ECHOS Unit Cost Book 1998; E - ECHOS Unit Cost Book 2000; C - Means CostWorks 2000; F - Means Fac. Constr. Cost Data 1998; R - Means Environmental Remediation Cost Data 2001
P - Based on Previous Work by CDM Federal; V - Vendor Quote; A - Allowance Assumed
L - Average Professional Labor Rates for 2002 (Average Rates Compiled from Various State/Federal Public Contract Sources)

Abbreviations:

QTY	quantity
EQUIP	equipment
MATL	material
HPF	HTRW productivity factor
ADJ LABOR	adjusted labor for HPF
ADJ EQUIP	adjusted equipment for HPF
UNMOD UC	unmodified unit cost
UNMOD LIC	unmodified line item cost
EF	escalation factor
AF	area factor
UNBUR LIC	unburdened line item cost
PC OH	prime contractor overhead
PC PF	prime contractor profit
BUR LIC	burdened line item cost
EA	each

Cost Adjustment Checklist:

FACTOR	NOTES
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.95 is used for labor and equipment unit costs that occur in contaminated areas
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1995 cost sources - 17% (EF=1.17).
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 8% is used for the Prime Contractor.

TABLE CW2-2

Capital Cost Sub-Element
Decontamination Facility

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas **Date:** 4/28/2003
Checked By: B. Cotton **Date:** 5/2/2003

Work Statement:
This sub-element includes portable decontamination facility cost for the decontamination of employees, materials, and equipment for the duration of asbestos removal.

Cost Analysis:
Portable Decontamination Facility

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC	CITATION	COMMENTS
Set Up Portable Asbestos Decontamination Facility Cost	1	EA	1.00	$59.44	$59.44	$13.99	$13.99	$815.39	$0.00	$891.81	$891.81	1.17	1.13	$999.39	15%	8%	$1,117	O 21134045	
Remove Portable Asbestos Decontamination Post Abatement Cleanup	1	EA	1.00	$89.16	$89.16	$20.98	$20.98	$30.92	$0.00	$141.06	$141.06	1.17	1.13	$183.37	15%	8%	$226	O 21134076	
																TOTAL UNIT COST:	$1,345		

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000.
Escalation factor is index from base year of estimate divided by index from year of cost data.
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HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000

Source of Cost Data:
NA - Not Applicable - costs are from previous work or vendor quote
For citation references, the following sources apply:
O - ECHOS Unit Cost Book 1998; E - ECHOS Unit Cost Book 2000; C - Means CostWorks 2000; F - Means Fac Constr Cost Data 1998; R - Means Environmental Remediation Cost Data 2001
P - Based on Previous Work by CDM Federal; V - Vendor Quote, A - Allowance Assumed
L - Average Professional Labor Rates for 2002 (Average Rates Compiled from Various State/Federal Public Contract Sources)

Abbreviations:
QTY quantity — EA each
EQUIP equipment
MATL material
HPF HTRW productivity factor
ADJ LABOR adjusted labor for HPF
ADJ EQUIP adjusted equipment for HPF
UNMOD UC unmodified unit cost
UNMOD LIC unmodified line item cost
EF escalation factor
AF area factor
UNBUR LIC unburdened line item cost
PC OH prime contractor overhead
PC PF prime contractor profit
BUR LIC burdened line item cost

Cost Adjustment Checklist:

FACTOR:	NOTES:
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.95 is used for labor and equipment unit costs that occur in contaminated areas
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1996 cost sources - 17% (EF=1.17)
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 8% is used for the Prime Contractor.

TABLE CW2-3

Capital Cost Sub-Element
Building Containment and Set-up

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas Date: 4/28/2003
Checked By: B. Cotton Date: 5/2/2003

Work Statement:
This sub-element includes set-up at field location and containment of the building by sealing all openings and providing negative air pressure

Cost Analysis:
Building Containment and Set-up (2.5 days)

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC		CITATION	COMMENTS
Seal all openings with polyethylene sheeting	310	SF	0.55	$0.00	$0.00	$0.00	$0.00	$0.10	$0.00	$0.10	$31.02	1.03	1.13	$35.66	15%	6%	$45	R	25 01 0210	Includes material cost only
Set up negative air machine, 1000-2000CFM unit, 25 KCF room volume	10	EA	1.00	$59.27	$59.27	$0.94	$0.94	$309.20	$0.00	$369.40	$3,694.04	1.17	1.13	$4,802.25	15%	6%	$5,884	O	21134049	
4 laborers - full time	80	HRS	1.00	$31.05	$31.05	$0.00	$0.00	$0.00	$0.00	$31.05	$2,484.00	1.04	1.13	$2,906.26	15%	6%	$3,610	C	Crew A-11	
1 foreman - full time	20	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$631.00	1.04	1.13	$738.27	15%	6%	$917	C	Crew A-11	
1 site manager -1/2 time	10	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$315.50	1.04	1.13	$369.14	15%	6%	$458	C	Crew A-11	
														TOTAL UNIT COST:			$8,008			

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000.
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HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000

Source of Cost Data:
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Abbreviations:
QTY quantity
EQUIP equipment
MATL material
HPF HTRW productivity factor
ADJ LABOR adjusted labor for HPF
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UNMOD LIC unmodified line item cost
EF escalation factor
AF area factor
UNBUR LIC unburdened line item cost
PC OH prime contractor overhead
PC PF prime contractor profit
BUR LIC burdened line item cost
EA each

Cost Adjustment Checklist:

FACTOR:	NOTES:
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.55 is used for labor and equipment unit costs that occur in contaminated areas
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1995 cost sources - 17% (EF=1.17).
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 6% is used for the Prime Contractor.

TABLE CW2-4

Capital Cost Sub-Element
Inventory Cleaning

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas Date: 4/28/2003
Checked By: B. Cotton Date: 5/2/2003

Work Statement:
This sub-element includes HEPA vacuum and wet cleaning of store inventory, boxing and storing inventory, and replacement of inventory following remediation.

Cost Analysis:
Inventory Cleaning (7 days)

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC	CITATION	COMMENTS
HEPA Vacuum and Wet Clean of inventory	5,160	SF	0.55	$0.00	$0.00	$0.01	$0.01	$0.01	$0.00	$0.03	$132.04	1.17	1.13	$171.66	15%	8%	$213	O 16020004	Includes equipment cost only.
Labor for inventory cleaning, removal and replacement (6 laborers for 7 days)	336	HRS	1.00	$31.05	$31.05	$0.00	$0.00	$0.00	$0.00	$31.05	$10,432.80	1.04	1.13	$12,206.38	15%	8%	$15,150	C Crew A-11	
Labor for inventory cleaning, removal and replacement (1 foreman for 7 days)	56	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$1,766.80	1.04	1.13	$2,067.16	15%	8%	$2,567	C Crew A-11	
Labor for inventory cleaning, removal and replacement (1 site manager for 3.5 days)	28	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$883.40	1.04	1.13	$1,033.58	15%	8%	$1,284	C Crew A-11	
Storage boxes, 16" x 6", rent per month - assume 4 boxes for 1 month	4	EA	1.00	$0.00	$0.00	$0.00	$0.00	$0.00	$70.00	$70.00	$280.00	1.09	1.13	$341.60	15%	8%	$424	F 015 904 1250	
														TOTAL UNIT COST:			$19,848		

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000
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Source of Cost Data:
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UNBUR LIC unburdened line item cost
PC OH prime contractor overhead
PC PF prime contractor profit
BUR LIC burdened line item cost
EA each

Cost Adjustment Checklist:

FACTOR:	NOTES:
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.55 is used for labor and equipment unit costs that occur in contaminated areas
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1998 cost sources - 17% (EF=1.17)
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 8% is used for the Prime Contractor.

TABLE CW2-5

Capital Cost Sub-Element
VCI Bulk Removal

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas Date: 4/28/2003
Checked By: B. Cotton Date: 5/2/2003

Work Statement:
This sub-element includes the removal of vermiculite containing insulation by removing lapboards and vacuuming material from interior of wall

Cost Analysis:
VCI Bulk Removal (5 days)

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC		CITATION	COMMENTS
Vacuum Truck and driver	40	HRS	1.00	$40.00	$40.00	$80.00	$80.00	$0.00	$0.00	$120.00	$4,800.00	1.00	1.00	$4,800.00	15%	6%	$5,952	P		
Labor for VCI removal (4 laborers)	160	HRS	1.00	$31.05	$31.05	$0.00	$0.00	$0.00	$0.00	$31.05	$4,968.00	1.04	1.13	$5,812.66	15%	6%	$7,219	C	Crew A-11	
Labor for VCI removal (1 foreman)	40	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$1,262.00	1.04	1.13	$1,476.54	15%	6%	$1,834	C	Crew A-11	
Labor for VCI removal (1 site manager - 1/2 time)	20	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$631.00	1.04	1.13	$738.27	15%	6%	$917	C	Crew A-11	
														TOTAL UNIT COST:			$15,832			

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000.
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HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000

Source of Cost Data:
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For citation references, the following sources apply:
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Abbreviations:
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MATL material
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UNMOD LIC unmodified line item cost
EF escalation factor
AF area factor
UNBUR LIC unburdened line item cost
PC OH prime contractor overhead
PC PF prime contractor profit
BUR LIC burdened line item cost
EA each

Cost Adjustment Checklist:

FACTOR:	NOTES:
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.95 is used for labor and equipment unit costs that occur in contaminated areas.
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1996 cost sources - 17% (EF=1.17).
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 6% is used for the Prime Contractor.

A

TABLE CW2-6

Capital Cost Sub-Element
Cleaning and Restoration

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas Date: 4/28/2003
Checked By: B. Cotton Date: 5/2/2003

Work Statement:
This sub-element includes HEPA vacuum and fine brush of floors and walls, application of encapsulant, installation of new insulation and replacement of existing walls.

Cost Analysis:
Detail cleaning, encapsulation and wall restoration (4 days)

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC		CITATION	COMMENTS
Fine Clean exposed substrate, vacuum surfaces, fine brush	1,626	SF	0.55	$0.00	$0.00	$0.13	$0.24	$0.00	$0.00	$0.24	$384.60	1.03	1.13	$446.37	15%	6%	$554	R	25 01 0509	Includes equipment costs only.
HEPA Vacuum and Wet Clean first floor flooring	5,190	SF	0.55	$0.00	$0.00	$0.01	$0.01	$0.01	$0.00	$0.03	$132.04	1.17	1.13	$171.88	15%	6%	$213	O	16029004	Includes equipment and material costs only.
Encapsulation with sealants, walls	1,626	SF	0.55	$0.00	$0.00	$0.04	$0.07	$0.25	$0.00	$0.33	$541.66	1.03	1.13	$628.35	15%	6%	$780	R	25 01 0701	Includes equipment and material costs only.
Insulation (fiberglass, 3 1/2" thick, 23" wide)	1,626	SF	0.55	$0.00	$0.00	$0.00	$0.00	$0.18	$0.00	$0.18	$293.04	1.09	1.13	$357.51	15%	6%	$444	F	072 116 0100	Includes material cost only.
Labor for entire duration of cleaning, encapsulation and restoration (4 laborers for 4 days)	128	HRS	1.00	$31.05	$31.05	$0.00	$0.00	$0.00	$0.00	$31.05	$3,974.40	1.04	1.13	$4,650.05	15%	6%	$5,775	C	Crew A-11	
Labor for entire duration of cleaning, encapsulation and restoration (1 foreman for 4 days)	32	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$1,009.60	1.04	1.13	$1,181.23	15%	6%	$1,467	C	Crew A-11	
Labor for entire duration of cleaning, encapsulation and restoration (1 hole manager for 2 days)	16	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$504.80	1.04	1.13	$590.62	15%	6%	$734	C	Crew A-11	
														TOTAL UNIT COST:			$9,987			

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000.
Escalation factor is index from base year of estimate divided by index from year of cost data.
Escalation indices are from Exhibit B-1 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000, and http://www.enr.com/features/conEco/costIndexes/default.asp
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000

Source of Cost Data:
NA - Not Applicable - costs are from previous work or vendor quote
For citation references, the following sources apply:
O - ECHOS Unit Cost Book 1999, E - ECHOS Unit Cost Book 2000; C - Means CostWorks 2000; F - Means Fac. Constr. Cost Data 1999; R - Means Environmental Remediation Cost Data 2001
P - Based on Previous Work by CDM Federal; V - Vendor Quote; A - Allowance Assumed
L - Average Professional Labor Rates for 2002 (Average Rates Compiled from Various State/Federal Public Contract Sources)

Abbreviations:

QTY	quantity	EA each
EQUIP	equipment	
MATL	material	
HPF	HTRW productivity factor	
ADJ LABOR	adjusted labor for HPF	
ADJ EQUIP	adjusted equipment for HPF	
UNMOD UC	unmodified unit cost	
UNMOD LIC	unmodified line item cost	
EF	escalation factor	
AF	area factor	
UNBUR LIC	unburdened line item cost	
PC OH	prime contractor overhead	
PC PF	prime contractor profit	
BUR LIC	burdened line item cost	

Cost Adjustment Checklist:

FACTOR	NOTES
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.55 is used for labor and equipment unit costs that occur in contaminated areas
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1995 cost sources - 17% (EF=1.17).
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 6% is used for the Prime Contractor.

TABLE CW2-7

Capital Cost Sub-Element
Asbestos-Contaminated Soil Removal

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas Date: 4/28/2003
Checked By: B. Cotton Date: 5/2/2003

Work Statement:
This sub-element includes removal of asbestos contaminated soil from the perimeter of the building (44 BCY) and the crawl space (96 BCY)

Cost Analysis:
Asbestos-contaminated soil removal. 1 day for exterior removal and 2 days for crawl space removal.

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC		CITATION	COMMENTS
Loosen soil (interior and exterior)	140	BCY	0.55	$0.00	$0.00	$0.93	$1.69	$0.00	$0.00	$1.69	$237.04	1.04	1.13	$277.34	15%	8%	$344	C	2310 460 0020	Includes equipment cost only.
Vacuum truck and driver	24	HRS	1.00	$40.00	$40.00	$80.00	$80.00	$0.00	$0.00	$120.00	$2,880.00	1.00	1.00	$2,880.00	15%	8%	$3,577	P		
Labor for interior soil removal (4 laborers, 2 days)	64	HRS	1.00	$31.05	$31.05	$0.00	$0.00	$0.00	$0.00	$31.05	$1,987.20	1.04	1.13	$2,325.02	15%	8%	$2,886	C	Crew A-11	
Labor for interior soil removal (1 foreman, 2 days)	16	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$504.80	1.04	1.13	$590.82	15%	8%	$734	C	Crew A-11	
Labor for interior soil removal (1 site manager for 1 day)	8	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$252.40	1.04	1.13	$295.31	15%	8%	$367	C	Crew A-11	
Labor for exterior soil removal and replacement (4 laborers, 1 day)	32	HRS	1.00	$31.05	$31.05	$0.00	$0.00	$0.00	$0.00	$31.05	$993.60	1.04	1.13	$1,162.51	15%	8%	$1,444	C	Crew A-11	
Labor for exterior soil removal and replacement (1 foreman, 1 day)	8	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$252.40	1.04	1.13	$295.31	15%	8%	$367	C	Crew A-11	
Labor for exterior soil removal and replacement (1 site manager for 0.5 day)	4	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$126.20	1.04	1.13	$147.65	15%	8%	$183	C	Crew A-11	
Unclassified Fill, 6" lifts, off-site, includes delivery, spreading, and compaction	51	LCY	0.55	$0.00	$0.00	$1.88	$3.38	$5.30	$0.00	$8.68	$441.89	1.00	1.13	$512.59	15%	8%	$637	R	17 03 0423	
														TOTAL UNIT COST:			$10,341			

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000.
Escalation factor is index from base year of estimate divided by index from year of cost data.
Escalation indices are from Exhibit B-1 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000, and http://www.enr.com/features/conEco/costindexes/default.asp
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000

Source of Cost Data:
NA - Not Applicable - costs are from previous work or vendor quote
For citation references, the following sources apply:
O - ECHOS *Unit Cost Book 1998*; E - ECHOS *Unit Cost Book 2000*; C - *Means CostWorks 2000*; F - *Means Fac. Constr. Cost Data 1998*; R - *Means Environmental Remediation Cost Data 2001*
P - Based on Previous Work by CDM Federal, V - Vendor Quote, A - Allowance Assumed
L - Average Professional Labor Rates for 2002 (Average Rates Compiled from Various State/Federal Public Contract Sources)

Cost Adjustment Checklist:

FACTOR:	NOTES:
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.55 is used for labor and equipment unit costs that occur in contaminated areas
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1995 cost sources - 17% (EF=1.17).
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 8% is used for the Prime Contractor.

Abbreviations:

QTY	quantity
EQUIP	equipment
MATL	material
HPF	HTRW productivity factor
ADJ LABOR	adjusted labor for HPF
ADJ EQUIP	adjusted equipment for HPF
UNMOD UC	unmodified unit cost
UNMOD LIC	unmodified line item cost
EF	escalation factor
AF	area factor
UNBUR LIC	unburdened line item cost
PC OH	prime contractor overhead
PC PF	prime contractor profit
BUR LIC	burdened line item cost
EA	each

TABLE CW2-8

Capital Cost Sub-Element
Transportation and Disposal

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas Date: 4/28/2003
Checked By: B Cotton Date: 5/2/2003

Work Statement:
This sub-element includes the storage, transporation and disposal of all contaminated material to the asbestos landfill.

Cost Analysis:
Asbestos Contaminated Material Disposal

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC	CITATION	COMMENTS
Transportation fee for Vacuum boxes to landfill	8	EA	1.00	$0.00	$0.00	$0.00	$0.00	$0.00	$200.00	$200.00	$1,600.00	1.00	1.00	$1,600.00	15%	6%	$2,230	P	
Asbestos Landfill Disposal, tipping fee	215	CY	1.00	$0.00	$0.00	$0.00	$0.00	$32.00	$0.00	$32.00	$6,895.00	1.00	1.00	$6,895.00	15%	6%	$8,564	P	
														TOTAL UNIT COST:			$10,800		

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000
Escalation factor is index from base year of estimate divided by index from year of cost data.
Escalation indexes are from Exhibit B-1 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000, and http://www.enr.com/features/conEcoCostIndexes/default.asp
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000

Source of Cost Data:
NA - Not Applicable - costs are from previous work or vendor quote
For citation references, the following sources apply:
O - ECHOS Unit Cost Book 1995; E - ECHOS Unit Cost Book 2000; C - Means CostWorks 2000; F - Means Fac Constr Cost Data 1998; R - Means Environmental Remediation Cost Data 2001
P - Based on Previous Work by CDM Federal; V - Vendor Quote; A - Allowance Assumed
L - Average Professional Labor Rates for 2002 (Average Rates Compiled from Various State/Federal Public Contract Sources)

Abbreviations:

QTY	quantity
EQUIP	equipment
MATL	material
HPF	HTRW productivity factor
ADJ LABOR	adjusted labor for HPF
ADJ EQUIP	adjusted equipment for HPF
UNMOD UC	unmodified unit cost
UNMOD LIC	unmodified line item cost
EF	escalation factor
AF	area factor
UNBUR LIC	unburdened line item cost
PC OH	prime contractor overhead
PC PF	prime contractor profit
BUR LIC	burdened line item cost
EA	each

Cost Adjustment Checklist:

FACTOR:	NOTES:
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.95 is used for labor and equipment unit costs that occur in contaminated areas.
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1995 cost sources - 17% (EF=1.17).
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 6% is used for the Prime Contractor.

TABLE CW2-9

Capital Cost Sub-Element
Site Breakdown

Site: Libby Asbestos
Location: Libby, Montana
Phase:
Base Year: 2003

Prepared By: A. Rassas Date: 4/29/2003
Checked By: B. Cotton Date: 5/2/2003

Work Statement:
This sub-element includes cleaning and breaking down equipment following restoration.

Cost Analysis:
Site breakdown (2.5 days)

DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	EF	AF	UNBUR LIC	PC OH	PC PF	BUR LIC	CITATION		COMMENTS
Labor for site cleaning and breakdown (4 laborers for 2.5 days)	80	HRS	1.00	$31.05	$31.05	$0.00	$0.00	$0.00	$0.00	$31.05	$2,484.00	1.04	1.13	$2,908.26	15%	8%	$3,610	C	Crew A-11	
Labor for site cleaning and breakdown (1 foreman for 2.5 days)	20	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$631.00	1.04	1.13	$738.27	15%	8%	$917	C	Crew A-11	
Labor for site cleaning and breakdown (1 site manager for 1.25 days)	10	HRS	1.00	$31.55	$31.55	$0.00	$0.00	$0.00	$0.00	$31.55	$315.50	1.04	1.13	$369.14	15%	8%	$458	C	Crew A-11	
														TOTAL UNIT COST:			$4,985			

Notes:
Area factor is from Exhibit B-2 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000
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Abbreviations:

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HPF	HTRW productivity factor		
ADJ LABOR	adjusted labor for HPF		
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UNMOD UC	unmodified unit cost		
UNMOD LIC	unmodified line item cost		
EF	escalation factor		
AF	area factor		
UNBUR LIC	unburdened line item cost		
PC OH	prime contractor overhead		
PC PF	prime contractor profit		
BUR LIC	burdened line item cost		

Cost Adjustment Checklist:

FACTOR:	NOTES:
H&S Productivity (labor and equipment only)	Field work will be in Level "C" PPE. An HPF of 0.95 is used for labor and equipment unit costs that occur in contaminated areas.
Escalation to Base Year	2001 cost sources are escalated by 3% to 2003 costs (EF=1.03), 2000 cost sources - 4% (EF=1.04), 1998 cost sources - 9% (EF=1.09), and 1996 cost sources - 17% (EF=1.17).
Area Cost Factor	An AF of 1.13 is used for Montana, except an AF of 1.00 (national unmodified average) is used for local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that Subcontractor O&P is either included in the PC O&P or has been factored into vendor quotes or previous work.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 5%, and field office OH is 10%. Profit of 8% is used for the Prime Contractor.

A